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TRANSMITTAL FORM

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Filing Date	09/19/2003
First Named Inventor	K. Inoue
Art Unit	1771
Examiner Name	A. Piziali
Attorney Docket Number	KIN90USA
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ENCLOSURES *(Check all that apply)*

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
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- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
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- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [x] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [ ] Other Enclosure(s) (please Identify below):

Remarks

Amended Brief on Appeal in response to Notification of Non-Compliant Appeal Brief dated 09/27/2006.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Howson & Howson		
Signature	George A Smith		
Printed name	George A. Smith, Jr.		
Date	10/02/2006	Reg. No.	24,442

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I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	George A Smith		
Typed or printed name	George A. Smith, Jr.	Date	10/02/2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No.: 10/664628
Applicant: K. Inoue
Filed: 09/19/2003
TC/A.U.: 1771
Examiner: A. Piziali
Docket No.: KIN90USA
Customer No. 00270

Confirmation No: 5070

AMENDED BRIEF ON APPEAL

CERTIFICATE OF MAILING
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Signed George A Smith
Date: Oct 2, 2006

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Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This appeal is from the rejection in the Office Action dated March 9, 2006, which was a third rejection of the claims in this application.

A check for the fee of $500.00 for filing the Appeal Brief was attached to the original brief. The Commissioner is requested to charge any deficiency in the fee for the Appeal Brief, or credit any overpayment, to our Deposit Account, No. 08-3040.

The Notice of Appeal was filed June 12, 2006. The original brief was therefore timely. This amended brief is also timely as it is being filed within one month from the

September 27, 2006 mailing date of the notification of non-compliant appeal brief. However, please grant an extension of time if necessary, and charge any extension fee to the above-mentioned deposit account.

I. REAL PARTY IN INTEREST

The real party in interest is the inventor's assignee, Ichikawa Co., Ltd., a Japanese corporation, located at 14-15, Hongo 2-chome, Bunkyo-ku, Tokyo, Japan.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF CLAIMS

The pending claims are claims 1, 3, 5 and 7, all of which are rejected. The applicant appeals the rejection of all of the claims.

IV. STATUS OF AMENDMENTS

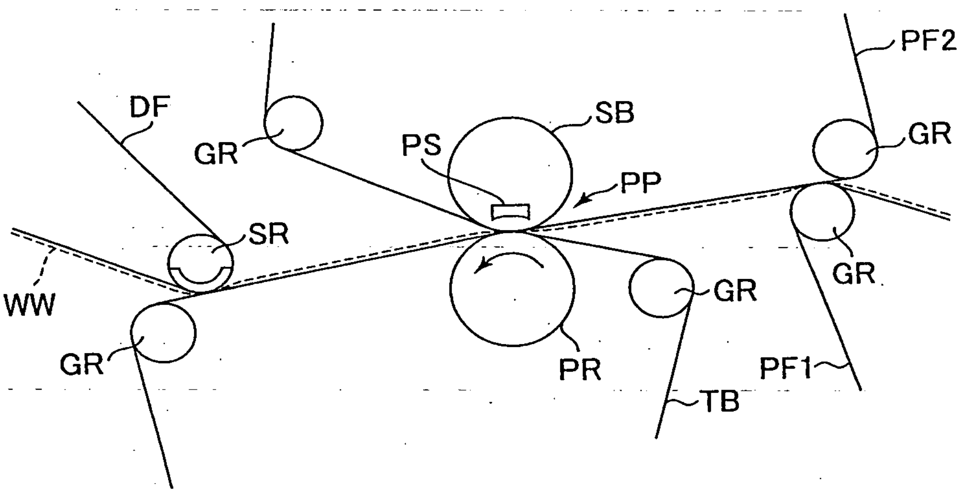
There are no outstanding amendments.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In a papermaking machine, as depicted in FIG. 1, reproduced below, a wet paper web WW, represented by a broken line, is typically moved through a part of the machine known as a "press part" (PP), which consists of a press roll PR, a fixed press shoe PS opposed to the press roll, and a shoe press belt SB, that travels around the shoe, between the shoe and the press roll.

FIG. 1

PRIOR ART



The wet paper web WW is first carried on a press felt PF1, transferred to a second press felt PF2, and carried by press felt PF2 into the press part PP,[1] where water is squeezed out of the wet paper web WW and taken up by the press felt

[1]Specification, paragraph 0005, page 1, lines 31-33.

PF2.[2] In the press part, the wet paper web WW is transferred to a transfer belt TB, which carries the wet paper web away from the press part.[3] In a subsequent stage, the wet paper web is taken off the transfer belt and transferred to a dryer fabric DF by a suction roll SR.[4]

A transfer belt has two conflicting requirements. It is important for the wet paper web to be attached to the surface of the transfer belt immediately after the wet paper web moves out of the press part.[5] On the other hand, release of the wet paper web from the transfer belt at the suction roll is also important.[6] The belt also has another requirement: avoidance of excessive rewetting, that is, return of water to the wet paper web as the wet paper web moves out of the press part.[7]

As shown in FIG. 5, reproduced below, the transfer belt 10 comprises a base body 30, a wet paper web side layer 11, which is contacted by the wet paper web WW, and a machine side layer 12, which is contacted by the press roll PR.[8]

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[2]Specification, paragraph 0006, page 2, lines 5-6.

[3]Specification, paragraph 0008, page 2, lines 23-25.

[4]Specification, paragraph 0007, page 2, lines 18-21.

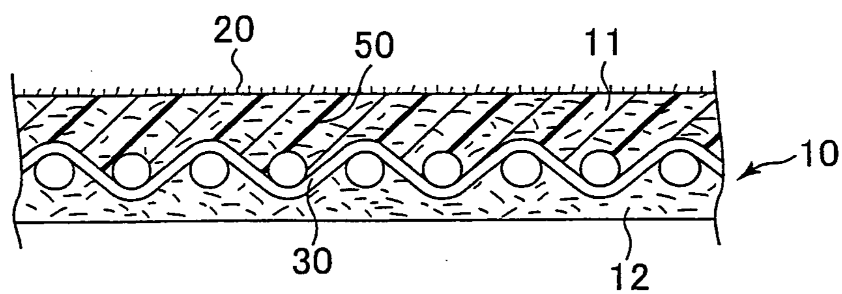
[5]Specification, paragraph 0008, page 2, lines 23-25.

[6]Specification, paragraph 0008, page 2, lines 25-27.

[7]Specification, paragraph 0006, page 2, lines 9-13.

[8]Specification, paragraph 0036, page 7, lines 5-8.

FIG. 5



The machine side layer 12 comprises a batt layer composed of fibers. The fibers of the batt layer are intertwined with the machine side of the base body 30.[9]

The base body 30 is typically a woven fabric.[10] The wet paper web side layer 11 is formed from an elastic material 50 and a fiber body 20.[11] Fibers of the fiber body 20 protrude from the surface of the elastic section, and one characteristic feature of the invention is that the average length of the protruding parts of the fibers is between 0.01 and 3 mm.[12]

The average density of the protruding parts of the fibers is preferably in the range of 10 to 500,000 fibers per square

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[9]Specification, paragraph 0049, page 10, lines 24-26.

[10]Specification, paragraph 0059, page 13, lines 27-30.

[11]Specification, paragraph 0036, page 7, lines 9-10.

[12]Specification, paragraph 0019, page 5, lines 22-23 and paragraph 0040, page 8, lines 9-12.

centimeter[13], and the protruding parts of may be formed by processing the surface of the elastic section[14], for example, by grinding with sandpaper, whetstone, or the like, thereby exposing a part of the batt layer[15].

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(a) Rejection of claims 1 and 5 under §103 on Gstrein, Hagfors and either Lundstrom '588 or Lundstrom '643.

(b) Rejection of claims 3 and 7 under §103 on Gstrein, Hagfors and either Lundstrom '588 or Lundstrom '643, further in view of Valentine.

Each of the above rejections, a and b, depends on Gstrein for a disclosure of a wet paper web transfer belt having fibers, parts of which are embedded and parts of which protrude from a web-contacting surface. Each rejection also depends on Hagfors, Patent 6,605,188, for a disclosure of fibers having an average protruding height between 0.001 and 0.03 mm[16], and on Lundstrom for a disclosure of elastomeric polymers. According to the Examiner, "it would have been obvious. . . to make the fibers (of Gstrein) protrude between 0.001 to 0.03 mm . . . ."

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[13]Specification, paragraph 0046, page 9, lines 31-34.

[14]Specification, paragarph 0020, page 5, lines 25-31.

[15]Specification, paragraph 0049, page 10, lines 33-35.

[16] A range of 0.001 to 0.03 mm would overlap the range of 0.01 to 3 mm in the claims.

(c) Rejection of claims 1 and 5 under §103 on Hagfors in view of either Lundstrom '588 or Lundstrom '643.

(d) Rejection of claims 3 and 7 under §103 on Hagfors in view of either Lundstrom '588 or Lundstrom '643, further in view of Valentine.

Each of rejections c and d depends on Hagfors, Patent 6,605,188, for a disclosure of fibers having an average protruding height between 0.001 and 0.03mm, and on Lundstrom for a disclosure of elastomeric polymers.

The Examiner has also asserted that, in the event it is shown that Hagfors does not teach or suggest the claimed protruding fiber length, it would have been obvious to vary the fiber length from 0.01 to 3 mm because

> "it is understood by one of ordinary skill in the art that the protruding fiber material affects the ability of the transfer belt to detach a fiber web and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art."[17]

VII. ARGUMENT

(a) The invention exhibits significant advantages.

The transfer belt of the invention addresses the conflicting requirements of attachment and release effectively

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[17]Office action of March 9, 2006, page 4.

over a long period of time. That is, the wet paper web adheres well to the transfer belt as it moves out of the press part, but can be removed smoothly from the transfer belt at the drying stage of the papermaking process.[18] The invention also avoids excessive rewetting, and is capable of avoiding excessive water retention in the transfer belt itself.[19]

The performance of transfer belts in accordance with the invention is compared with other transfer belts in FIG. 13, where evaluations of web adhesion immediately after the press part, web removal, and rewetting are tabulated for various average fiber lengths and average fiber densities. Excellent results were obtained with Examples 2-5, where the fiber lengths were within the range of 0.01 and 3 mm as in claim 1, and the fiber density was within the range of 10 to 500,000 as in claim 3. When the fiber lengths were outside the high end of the claimed range, e.g. 6.80 mm as in Example 7, adhesion at the exit of the press part deteriorated, and excessive rewetting occurred.

In Example, 1, at a fiber density of 3 pcs/cm^2, which is below the low end of the range set forth in claim 3, adhesion of the wet paper web WW was excessively high and it could not be transferred smoothly to the dryer fabric.[20] Example 6,

[18]Specification, paragraph 0017, page 5, lines 4-9.

[19]Specification, paragraph 0048, page 10, lines 17-19.

[20]Specification, paragraph 0074, page 17, line 36 - page 18, line 2.

where the fiber density was above the high end of the range set forth in claim 3, rewetting performance was slightly inferior, in that the moisture content of the wet paper web after it moved out of the press part was higher than in Examples 1-5.[21]

In summary, therefore, the claimed range of lengths of the exposed fibers results in good adhesion, and also avoids excessive rewetting provided that the fiber density is not too high. Further, when the fiber density is also within the range set forth in claim 3, smooth removal can be achieved.

(b) <u>Hagfors does not teach that the length of exposed fibers should be in the Applicant's claimed range</u>.

No separate argument is being made for the dependent claims. All of the rejections depend on Hagfors, and the dispositive issue in this case is whether or not Hagfors teaches that the average length of the protruding parts of fibers protruding from the web-contacting surface of an elastic section should be between 0.01 and 3 mm.

In the rejections, the Examiner asserts that Hagfors shows that it is known in the papermaking belt art "to use fibers with an average protruding height of between 0.001 to 0.03 mm," citing Hagfors' column 4, lines 17-40. What the cited portion of Hagfors actually teaches is that ". . . the surface of the polymer matrix . . .[is] ground so that the batt fibres reach the surface of the transfer belt. A test

[21]Specification, paragraph 0074, page 18, lines 2-5.

that was carried out showed that a transfer belt roughness where $2<R_z<80$ μm and $1<R_a<30$ μm is advantageous."[22] The 1 - 30 μm range for R_a in translates to 0.001 to 0.30 mm.

The Examiner's reliance on the 0.001 to 0.30 mm. surface roughness range in Hagfors implies that the range overlaps the Applicant's claimed range of 0.01 to 3 mm. Indeed, if one looks at the numbers by themselves, the ranges do overlap. However, when the dimensions to which the numbers apply are taken into account, there is no overlap at all.

The problem is that surface roughness and the lengths of protruding fibers are two entirely different things. Hagfors' own description points out that surface roughness is related to two factors, neither of which is fiber length. At column 1, line 67 - column 2, line 2, Hagfors states that surface roughness "can be controlled not only by the roughness of the abrasive means but also by the degree of fineness of the fibers."

Nowhere does Hagfors say that the average length of protruding parts of the fibers is between 0.01 and 3 mm. The only information concerning fiber length in Hagfors is the statement at column 3, lines 12 and 13, that the fiber length "may be typically 10 to 150 mm before needling." Moreover, Hagfors' FIG. 1 depicts surface fibers some of which are oblique, and others of which are parallel to the belt surface.

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[22] R_a is an average based on measurements of all peaks and valleys of a surface roughness profile. R_z is an average based on a selected number of highest peaks and deepest valleys in a surface roughness profile.

In the case of the oblique fibers, about one-half of the length of each fiber is exposed. In the case of the fibers oriented parallel to the surface, the entire length of the fiber is exposed. Based on the description and drawings, the only deduction that can be made concerning the average length of the protruding parts of the fibers is that it would be at least about 5 mm, well in excess of Applicant's claimed upper limit of 3 mm. As shown in Applicant's FIG. 12, examples 2-5, in which the average length of the protruding parts of the fibers was between 0.01 and 3 mm, were far superior to example 7, in which the average length of the protruding parts was 6.8 mm.

(c) <u>It has not been shown that it would have been obvious to optimize the average length of exposed fibers</u>.

As noted above, the Examiner's position is that, if it is shown that Hagfors does not teach or suggest the claimed protruding fiber lengths, the Applicant's claimed range of 0.01 to 3 mm would have been obvious because "discovering an optimum value of a result effective variable involves only routine skill in the art." The key phrase here is "result effective." As pointed out by the Court of Customs and Patent Appeals in <u>In re Antonie</u>, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), it is not obvious to vary a parameter if there is no evidence that the prior art recognized that the particular parameter would affect the result.

Hagfors does not teach that exposed fiber length has an effect on a result. On the contrary, as mentioned above, Hagfors' desired result, a specific range of surface

roughness, is controlled by the roughness of the abrasive means and by the degree of fineness of the fibers. There is no mention in Hagfors that varying the lengths of the fibers has an effect, nor is there support in the record for the Examiner's assertion (at pages 4 and 7 of the Office action) concerning the understanding of one skilled in the art, much less the essential implication of that assertion, namely that it is understood in the art that the *average length of the protruding parts of the fibers* affects the ability of a transfer belt to detach a fiber web. Thus, there is no basis for concluding that it would have been obvious to find an optimum fiber length through experimentation.

(d) Conclusion

In summary, Hagfors does not teach a wet paper web transfer belt in the average length of the protruding parts of fibers which protrude from an elastic section is between 0.01 and 3 mm, nor does Hagfors demonstrate that adopting the claimed range would have been an obvious matter of routine optimization. Since all of the rejections depend on Hagfors for a teaching of the Applicant's claimed range, the rejections are in error and should be reversed.

Respectfully submitted,
HOWSON & HOWSON

By [signature]

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VIII. CLAIMS APPENDIX

1. A wet paper web transfer belt for use in the press part of a closed draw papermaking machine, comprising a base body, a wet paper web side layer having an elastic section, said elastic section having a wet paper web-contacting surface, and a machine side layer, said belt having fibers, parts of which are embedded in said elastic section, and parts of which protrude from said web-contacting surface, wherein the average length of the protruding parts of said fibers is between 0.01 and 3 mm.

2(cancelled).

3. A wet paper web transfer belt as claimed in claim 1, wherein the average density of the protruding parts of said fibers is in the range of 10 to 500,000 fibers/cm^2.

4(cancelled).

5. A wet paper web transfer belt as claimed in claim 1, wherein the protruding parts of said fibers are formed by processing the surface of said elastic section.

6(cancelled).

7. A wet paper web transfer belt as claimed in claim 3, wherein the protruding parts of said fibers are formed by processing the surface of said elastic section.

8-12(cancelled)

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None